

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) ~~A system for transferring semiconductor workpieces between a workpiece carrier having a carrier door and a processing tool;~~ An apparatus being adapted to receive and open one or more containers, each container having a mechanically openable door, comprising:

a frame including: having a first vertical strut and a second vertical strut each mounted to a lower support member providing a port door/carrier door storage compartment and plurality of mounting surfaces and an upper support member, said frame defining a perimeter of an I/O port;

a first elongated strut and a second elongated strut, said first and second elongated struts each having a bottom portion; and

a structure secured to said bottom portion of both of said first and second elongated struts, said structure providing an exterior mounting surface, an interior mounting surface and a port door storage area located between said exterior mounting surface and said interior mounting surface;

a container advance assembly secured to said exterior mounting surface, said container advance assembly having a support plate being adapted to receive the container;

an isolation plate removably mounted to said first and second elongated struts, said isolation plate having an opening; and

a port door movable between a first position and a second position, said port door being adapted to couple with the mechanically openable door of the container.

~~an isolation plate having an opening, said isolation plate removably mounted to said first and second vertical struts such that a semiconductor workpiece may travel through said opening in said isolation plate and said I/O port;~~

~~a carrier advance assembly mounted to one of said plurality of mounting surfaces of said lower support member, said carrier advance assembly including an advance plate~~

~~for supporting the wafer carrier and moving the wafer carrier between a first position and a second position;~~

~~a port door assembly including a port door being adapted to couple with the carrier door, and a port door drive mechanism mounted to said first vertical strut for moving said port door between said opening in said isolation plate and said port door/carrier door storage compartment; and~~

~~a workpiece handling robot for transferring the semiconductor workpieces between the workpiece carrier and the processing tool.~~

2. (Currently Amended) The system apparatus as recited in claim 1, wherein at least one of said second vertical strut elongated struts includes a guide mechanism for movably guiding said port door between said opening in said isolation plate and said port door/carrier door storage area compartment.

3. (Previously Canceled)

4. (Currently Amended) The system apparatus as recited in claim 1, wherein said isolation plate may be discretely removed from said frame. ~~comprises a substantially transparent material.~~

5-7. (Previously Canceled)

8. (Currently Amended) An apparatus able to receive and open one or more containers each having a mechanically openable door, ~~Equipment Front End Module (EFEM) system for transferring semiconductor wafers between a wafer carrier having a carrier door and a processing tool, comprising:~~

a frame including:

~~having a first vertical strut and a second vertical strut each mounted to a lower support member and an upper support member, said lower support member providing a port door storage compartment and a plurality of mounting surfaces each adapted to receive a front end tool component, said frame defining an I/O port;~~

a first elongated strut and a second elongated strut, said first and second elongated struts each having a front surface and a rear surface; and

a structure secured to said first and second elongated struts, said structure providing an exterior mounting surface that is secured to said front surfaces of said first and second elongated struts, an interior mounting surface that is secured to said rear surfaces of said first and second elongated struts, and a port door storage area located between said exterior mounting surface and said interior mounting surface;

a container advance assembly secured to said exterior mounting surface, said container advance assembly having a support plate being adapted to receive the container;

an isolation plate removably secured to said front surfaces of said first and second elongated struts, said isolation plate having an opening; and

a port door movable between a first position and a second position, said port door being adapted to couple with the mechanically openable door of the container.

~~a carrier advance assembly mounted to one of said plurality of mounting surfaces of said lower support member, said carrier advance assembly including an advance plate for supporting the wafer carrier and moving the wafer carrier between a first position and a second position;~~

~~an isolation plate having an opening, said isolation plate removably mounted to said first and second vertical struts;~~

~~a port door assembly including a port door being adapted to couple/uncouple with the carrier door and a port door drive mechanism for moving said port door between said opening in said isolation plate and said port door storage compartment.~~

9. (Currently Amended) The system apparatus as recited in claim 8, further including a mechanism secured to said first strut, said mechanism for moving said port door between said first and second positions. ~~wherein said port door drive mechanism is affixed to said first vertical strut.~~

10. (Currently Amended) The system apparatus as recited in claim 8, wherein said container advance assembly is adapted to move said support plate substantially horizontally between a forward position and a rear position. ~~further including a wafer handling robot mounted to one of said plurality of mounting surfaces of said lower support member.~~

11-12. (Previously Canceled)

13. (Currently Amended) An apparatus able to receive and open two or more workpiece containers, each container having a mechanically openable door and able to store at least one workpiece, Equipment Front End Module (EFEM) system for transporting semiconductor wafers between a Front Opening Unified Pod (FOUP) having a FOUP door and a processing tool, comprising:

a frame defining a perimeter of an I/O port, including:

an upper support member;

a lower support member providing an interior door storage compartment, an interior mounting surface, and an exterior mounting surface;

a first vertical strut and a second vertical strut, each said vertical strut affixed to said upper support member and said lower support member;

a first elongated strut, a second elongated strut and a third elongated strut, said first, second and third elongated struts each having a front surface and a rear surface; and

a structure secured to said first, second and third elongated struts, said structure providing an exterior mounting surface that is secured to said front surfaces of said first, second and third elongated struts, an interior mounting surface that is secured to said rear surfaces of said first, second and third elongated struts, and a port door storage area located between said exterior mounting surface and said interior mounting surface;

a first container advance assembly having a support plate being adapted to receive a container, said first container advance assembly secured to said exterior mounting surface between said first and second elongated struts;

a second container advance assembly having a support plate being adapted to receive a container, said second container advance assembly secured to said exterior mounting surface between said second and third elongated struts;

an isolation plate removably secured to said front surfaces of said first, second and third elongated struts, said isolation plate having a first port opening located between said first and second elongated struts and second port opening located between said second and third elongated struts; and

a first port door movable between said first port opening and a second position, said first port door being adapted to couple with the mechanically openable door of a container; and

a second port door movable between said second port opening and a second position, said second port door being adapted to couple with the mechanically openable door of a container.

~~a FOUP advance assembly mounted to said exterior mounting surface, said FOUP advance assembly including a FOUP advance plate for moving the FOUP between a first position and a second position;~~

~~a FOUP docking plate removably mounted to said first vertical strut and said second vertical strut, said FOUP docking plate being substantially perpendicular to said FOUP advance plate and having an opening; and~~

~~a port door assembly including a port door being adapted to couple/uncouple a FOUP door and a port door drive mechanism for moving said port door between said opening in said FOUP docking plate and said interior door storage compartment.~~

~~said vertical struts of said unified frame provide a common reference that said wafer engine, said SMIF pod advance assembly, and said SMIF pod docking plate may align with.~~

14. (Previously Canceled).

15. (Currently Amended) The system apparatus as recited in claim 13, wherein said FOUP ~~docking~~ isolation plate comprises a substantially transparent material.

16. (Currently Amended) The system apparatus as recited in claim 13, further including a first mechanism secured to said first elongated strut for moving said first port door between said first port opening and said second position and second mechanism secured to said second elongated strut for moving said second port door between said second port opening and said second position. ~~wherein said port door drive mechanism is affixed to said first vertical strut.~~

17. (Currently Amended) The system as recited in claim 1, ~~wherein said~~ further including a workpiece handling robot for accessing workpieces stored in each container through said first port opening and said second port opening ~~is affixed to one of said plurality of mounting surfaces.~~